We claim:

1. An optical switch comprising:

a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions;

a first test array of mirrors having a test input and a plurality of outputs, the first test array enabling a test signal to be routed to mirrors of the switching array;

a second test array of mirrors having a test output, the test input of the first test array being routed to the test output when the mirror being tested is in one of the first and second positions.

2. An optical switch as claimed in claim 1, wherein the outputs of the first test array are aligned optically with the inputs to the switching array.

3. An optical switch as claimed in claim 1, wherein the first and second test arrays are formed on the same substrate as the switching array.

4. An optical switch as claimed in claim 3, wherein the first test array is formed from mirrors of the switching array, and comprises double-sided mirrors, the first test array enabling a test signal to be routed to the remaining mirrors of the switching array.

5. An optical switch as claimed in claim 1, wherein the first test array further comprises a plurality of signal inputs.

6. An optical switch as claimed in claim 1, wherein the first and second test arrays are arranged on adjacent sides of the switching array.

7. An optical switch as claimed in claim 6, wherein the second test array comprises a plurality of signal outputs.

8. An optical switch as claimed in claim 1, wherein the first and second test arrays are arranged on opposite sides of the switching array.

9. An optical switching system comprising:

a plurality of optical switches, each optical switch comprising:

a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions;

a first test array of mirrors having a test input and a plurality of outputs, the first test array enabling a test signal to be routed to mirrors of the switching array; and

a second test array of mirrors having a test output, the test input of the first test array being routed to the test output when the mirror being tested is in one of the first and second positions;

an input micromirror array having a combined test input and a plurality of outputs, each output being aligned optically with an input to the first test array of a respective one of the optical switches, thereby enabling the combined test input to be routed to the first test array of each optical switch; and

an output micromirror array having a plurality of inputs from the second test arrays of each optical switch and a combined test output.

10. An optical node comprising:

a demultiplexing unit receiving a group of WDM channels and for providing individual channels on individual optical fibers;

one or more optical switches having as inputs the optical fibers carrying the individual channels, the or each optical switch comprising::

a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions;

a first test array of mirrors having a test input and a plurality of outputs, the first test array enabling a test signal to be routed to mirrors of the switching array; and

a second test array of mirrors having a test output, the test input of the first test array being routed to the test output when the mirror being tested is in one of the first and second positions;

a multiplexing unit having as inputs the outputs of the optical switch, the multiplexing unit combining the individual channels into a single WDM signal on an individual optical fiber.

11. A method of testing a mirror within a micromirror array optical switch, the method comprising:

applying a test signal to a first test array of mirrors;

positioning a mirror of the first test array in a predetermined position, thereby routing the test signal to a selected input of the optical switch, the mirror to be tested being associated with the selected input;

positioning the mirror to be tested of the optical switch in a testing position;

receiving a test output from a second test array of mirrors, the test signal being routed to the test output or being intercepted from being routed to the test output when the mirror being tested is in the testing position.

12. A method as claimed in claim 11, wherein the first test array comprises mirrors of the optical switch, and wherein the test signal is routed by one side of the mirrors of the first test array, and the signals to be routed by the optical switch are routed by the opposite side of the mirrors of the first test array.

13. A method of testing mirrors within a plurality of micromirror array optical switches, the method comprising:

applying a combined test signal to an input micromirror array, and selectively routing the test input to a first test array of mirrors of a selected optical switch;

positioning a mirror of the first test array in a predetermined position, thereby routing the test signal to a selected input of the selected optical switch, the mirror to be tested being associated with the selected input;

positioning the mirror to be tested of the selected optical switch in a testing position;

receiving a test output from a second test array of mirrors of the selected optical switch, the test signal being routed to the test output or being intercepted from being routed to the test output when the mirror being tested is in the testing position; and

receiving the test output at an output micromirror array which routes the test output from the selected optical switch to a combined test output.

14. A method of testing the connection of an optical switch within an optical communications system node, the optical switch comprising a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions; a first test array of mirrors having a test input and a plurality of outputs, the first test array enabling a test signal to be routed to mirrors of the switching array; and a second test array of mirrors having a test output, the test input of the first test array being routed to the test output when the mirror being tested is in one of the first and second positions, the method comprising:

generating a test signal on a specific wavelength;

routing the test signal through a demultiplexing unit to provide the test signal on an individual optical fiber, the test signal being routed by the demultiplexer onto an input of the switching array of the optical switch; and

controlling the second test array whilst monitoring the test output, thereby determining to which input the test signal was routed.

15. A method of testing the connection of an optical switch within an optical communications system node, the optical switch comprising a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions; a first test array of mirrors having a test input and a plurality of outputs, the first test array enabling a test signal to be routed to mirrors of the switching array; and a second test array of mirrors having a test output, the test input of the first test array being routed to the test output when the mirror being tested is in one of the first and second positions, the method comprising:

generating a test signal on a specific wavelength;

routing the test signal to the test input of the first test array;

controlling the first test array to route the test signal to a desired input of the switching array, the optical switch coupling the test signal to an output of the switching array which is coupled to an input of a multiplexing unit, the multiplexing unit providing the test signal on one channel of a WDM signal; and

monitoring the presence of the test signal within the WDM signal, thereby determining correct routing of the signal through the multiplexing unit.

16. An optical switch comprising:

a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions; and

a test array of mirrors having a test input and a plurality of outputs, the test array enabling a test signal to be routed to mirrors of the switching array.

17. An optical switch comprising:

a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions; and

a test array of mirrors having a number of inputs connected to or optically aligned with the outputs of the switching array, and a test output.

18. An optical network comprising at least two nodes,

wherein the first node includes at least one optical switch comprising a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions and a test array of mirrors having a test input and a plurality of outputs, the test array enabling a test signal to be routed to mirrors of the switching array,

wherein the second node includes at least one optical switch comprising a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions and a test array of mirrors having a number of inputs connected to or optically aligned with the outputs of the switching array, and a test output,

wherein a test signal can be provided at the test input of the first node and a monitoring arrangement is provided for monitoring the signal at the test output of the second node.

19. A method of route discovery through an optical network comprising at least two nodes, the method comprising:

injecting a test signal tot a test input of the first node, the first node comprising a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions and a test array of mirrors having the test input and a plurality of outputs, the test array enabling a test signal to be routed to mirrors of the switching array,

monitoring the signal at a test output of the second node, the second node comprising at least one optical switch comprising a switching array of micromirrors having a plurality of inputs and a plurality of outputs, the micromirrors of the switching array each having first and second positions and a test array of mirrors having a number of inputs connected to or optically aligned with the outputs of the switching array, and the test output.